

REMARKS

Applicants have reviewed and considered the Office Action dated May 14, 2008, and the references cited therein. In the Office Action, claims 43-44 were rejected under 35 U.S.C. § 112, first paragraph, claims 31-32, 36-37, and 39-44 were rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Pat. No. 3,665,682 (Ciavattoni) and claims 33 and 38 were rejected under 35 U.S.C. § 103(a) as unpatentable over Ciavattoni as applied to claim 31, and further in view of U.S. Pat. 5,019,060 (Goosen). The Examiner further rejected claims 34 and 35 under 35 U.S.C. § 103(a) as unpatentable over Ciavattoni and Goosen, and further in view of U.S. Pat. 5,195,995 (Walker). In response thereto, Applicants have amended claims 31-32 and 43 and added claims 45-46. As a result, claims 31-46 are pending in the present application.

Rejections Under 35 U.S.C. § 112

Claims 43-44 are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.

Claim 43 has been amended to recite “an air pathway from the separation chamber to the outlet; a fluid pathway from the separation chamber to the outlet, the fluid pathway being separate from the air pathway.” Reconsideration and allowance are respectfully requested.

Rejections Under 35 U.S.C. § 102

Claims 31, 32, 36, 37 and 39-44 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Pat. No. 3,665,682 (Ciavattoni). The rejection of the claims is traversed for at least the following reasons.

Independent Claim 31 is Not Anticipated by Ciavattoni

Claim 31, as amended, is directed to a vacuum system comprising, in part, “a vacuum source; a connector comprising an inlet, an outlet operably coupled directly with the vacuum source, wherein the vacuum source is positioned downstream from the outlet, a separation chamber in communication with the inlet, an air pathway from the separation chamber to the outlet, and a fluid pathway, separate from the air pathway, from the separation chamber to the outlet . . .”

Ciavattoni, in contrast, discloses a dental evacuation apparatus. *Ciavattoni*, Abstract. Generally, the apparatus conducts debris extracted from a patient's mouth through debris conducting lines 20, 22, and 24 into a separating device 68. *Ciavattoni*, Col. 2, ll. 55-60. Regarding the suction/vacuum required to conduct debris through lines 20, 22, and 24, the apparatus includes venturis 28, 30, and 32 disposed in each of the conducting lines. *Ciavattoni*, Col. 2, ll. 60-61. Ciavattoni explains:

Each of the venturis 28, 30 and 32 are identical in construction and operation; thus only venturi 32 shown in section on the left will be described. Venturi 32 includes a restricted annular zone 52, and an enlarged passage 53 located downstream thereof. Compressed air or gas enters annular zone 52, and is directed past passage 50 toward the separator 26 via the enlarged passage 53. Thus, a suction or negative pressure is created upstream in the saliva ejector 16, saliva ejector 16 being connected to conducting line 24. As a result saliva is directed through line 24, passage 50, through the enlarged passage 53 and toward separator 26. It is noted that venturi 32 is threadably connected to separator 26, having a gasket 58 disposed therebetween to insure a good fluid-tight seal with the separator. *Ciavattoni*, Col. 3, ll. 11-25.

Debris discharged into the separation chamber swirls about the inner surface of the separation chamber 26 in a whirlpool fashion to separate out the different states of matter. Ciavattoni explains:

[D]ebris matter discharged into the separation chamber 68 through one of the discharge lines 86 swirls about the inner annular surfaces of the separation chamber in a whirlpool fashion. This action more effectively separates the gas, liquid, and solid components. The gas being lighter will rise within chamber 68, expand, and release additional moisture. The liquid and solids descend into the lower portion 84, the liquid discharging through liquid discharge line 100, while solids settle within the receptacle portion 92 of the cap (FIG. 2). The separated gas is directed to exhaust chamber 70 via a connecting passageway which includes tubular member 72, connecting chamber 73, and line 74. The gas then passes through filtering means 76, and exhaust port 78 to the surrounding atmosphere. The filtering means 76 serves not only to muffle the noise of the exhausting gas, but is also treated to prevent a buildup of germs, since a portion of the gas being exhausted has come from a patient's mouth. Gas which did not separate in chamber 68, but became entrained with the discharging liquid, is vented through a venting passageway 102 extending between liquid discharge line 100 and exhaust chamber 70. As can be seen in FIG. 2, this gas also passes through filtering means 76 before being discharged into the surrounding atmosphere. *Ciavattoni*, Col. 4, ll. 41-64.

As is observed from the foregoing, and with reference to FIG. 2, Ciavattoni discloses a device having a separator 68 in communication with two outlets – a first outlet (pathway 72, 73, 74, 78) for gases, and a second outlet (pathway 100, 102) for liquids and entrained gases. Still referring to FIG. 2, neither of the first outlet and the second outlet are operably coupled directly to the venturis 28, 30, 32. Instead, the venturis 28, 30, 32 are operably coupled directly to conducting lines 20, 22, 24, gas supply lines 44, 46, 48, and enlarged passage 53. Moreover, none of the venturis 28, 30, 32 is positioned downstream from either of the first outlet or the second outlet. Rather, as discussed above, the venturis 28, 30, 32 are located in the apparatus pathway prior to, or upstream of, the inlet of the separation chamber 68 and the first and second outlets. *See generally, Ciavattoni, Col. 2, l. 69-Col. 3, l. 46.* Thus, Ciavattoni does not disclose “an outlet operably coupled directly with [a] vacuum source, wherein the vacuum source is positioned downstream from the outlet.”

Furthermore, Ciavattoni does not disclose “an air pathway from the separation chamber to the outlet, and a fluid pathway, separate from the air pathway, from the separation chamber to the outlet . . .” Instead, as discussed above, Ciavattoni discloses a gas pathway from the separation chamber 68 to a first outlet (pathway 72, 73, 74, 78), and a liquids and entrained gases pathway from the separation chamber 68 to a separate, second outlet (pathway 100, 102).

Accordingly, for at least the reasons presented above, Ciavattoni does not disclose “an outlet operably coupled directly with [a] vacuum source, wherein the vacuum source is positioned downstream from the outlet,” nor “an air pathway from the separation chamber to the outlet, and a fluid pathway, separate from the air pathway, from the separation chamber to the outlet,” as recited in claim 31. Reconsideration and allowance are requested.

Claims Depending from Claim 31 are Patentable

Claims 32-42 depend either directly or indirectly from claim 31 and incorporate all the limitations of claim 31. Accordingly, these claims are also patentable for at least for the reasons presented above and further in view of their additional recitations. Reconsideration and allowance are requested.

Independent Claim 43 is Not Anticipated by Ciavattoni

Claim 43 is directed to a vacuum connector adapted to be operably coupled to a vacuum source comprising, in part, “one or more inlets . . . one or more separation chambers in communication with one or more of the inlets . . . [and] a removable decontamination unit adapted to be coupled to an inlet of the connector; wherein the decontamination unit comprises a collapsible container containing a pre-measured amount of decontaminating solution; and wherein the collapsible container is configured such that upon actuation of the vacuum source, the decontaminating solution flows from the collapsible container to the separation chamber and the collapsible container collapses.”

In contrast, Ciavattoni discloses an exhaust chamber 70 having a filtering means 76 for filtering gases which have been separated out of a debris flow by a separator 68. Ciavattoni explains:

[D]ebris matter discharged into the separation chamber 68 through one of the discharge lines 86 swirls about the inner annular surfaces of the separation chamber in a whirlpool fashion. This action more effectively separates the gas, liquid, and solid components The separated gas is directed to exhaust chamber 70 via a connecting passageway which includes tubular member 72, connecting chamber 73, and line 74. The gas then passes through filtering means 76, and exhaust port 78 to the surrounding atmosphere. The filtering means 76 serves not only to muffle the noise of the exhausting gas, but is also treated to prevent a buildup of germs, since a portion of the gas being exhausted has come from a patient's mouth. *Ciavattoni*, Col. 4, ll. 41-58.

Ciavattoni does not disclose a pre-measured amount of decontaminating solution within the exhaust chamber 70. Moreover, Ciavattoni does not disclose that, upon actuation of the venturis 28, 30, 32, a decontaminating solution flows from the exhaust chamber 70 to the separation chamber 68 or that the exhaust chamber 70 collapses. To the contrary, while the venturis 28, 30, 32 are operating, gases flow from the separator 68 to the exhaust chamber 70 and the exhaust chamber 70 maintains its size and shape.

Accordingly, for at least the reasons presented above, Ciavattoni does not disclose “a removable decontamination unit adapted to be coupled to an inlet of the connector; wherein the decontamination unit comprises a collapsible container containing a pre-measured amount of decontaminating solution; and wherein the collapsible container is configured such that upon actuation of the vacuum source, the decontaminating solution flows from the collapsible

container to the separation chamber and the collapsible container collapses,” as recited in claim 43. Reconsideration and allowance are requested.

Claims Depending from Claim 43 are Patentable

Claim 44 depends directly from claim 43 and incorporates all the limitations of claim 43. Accordingly, this claim is also patentable for at least for the reasons presented above and further in view of its additional recitations. Reconsideration and allowance are requested.

Rejections Under 35 U.S.C. § 103

Claims 33 and 38 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ciavattoni as applied to claim 31 above, and further in view of U.S. Pat. No. 5,019,060 (Goosen). Claims 34 and 35 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ciavattoni and Goosen in view of U.S. Pat. No. 5,195,995 (Walker).

As discussed above with regard to claim 31, Ciavattoni does not disclose “an outlet operably coupled directly with [a] vacuum source, wherein the vacuum source is positioned downstream from the outlet,” or “an air pathway from the separation chamber to the outlet, and a fluid pathway, separate from the air pathway, from the separation chamber to the outlet.”

Neither Goosen nor Walker remedy the disclosure deficiencies of Ciavattoni. Goosen teaches a liquid collection device for use with various surgical procedures to control and monitor the rate of flow of liquid from one or more body cavities of a patient. *Goosen*, Col. 4, ll. 10-16. Walker teaches a chest drainage apparatus that accurately calculates and displays the rate of gas leakage from a patient’s pleural cavity. *Walker*, Col. 2, ll. 6-8. None of Ciavattoni, Goosen, and Walker, alone or in combination, disclose, teach, or suggest “an outlet operably coupled directly with [a] vacuum source, wherein the vacuum source is positioned downstream from the outlet,” or “an air pathway from the separation chamber to the outlet, and a fluid pathway, separate from the air pathway, from the separation chamber to the outlet,” as recited in claim 31.

Claims 33 and 38 depend directly from claim 31 and incorporate all the limitations of claim 31. Accordingly, these claims are also patentable for at least for the reasons presented above and further in view of their additional recitations. Reconsideration and allowance are requested.

New Claims are Patentable

Claims 45-46 were added. Claim 45 is directed to a vacuum system comprising, in part, “a vacuum source; a connector comprising an inlet, an outlet coupled directly with the vacuum source, wherein the vacuum source is positioned downstream from the outlet, a separation chamber in communication with the inlet, an air pathway in communication with the separation chamber and the outlet, and a fluid pathway separate from the air pathway and in communication with the separation chamber . . . a removable decontamination unit adapted to be coupled to the connector; wherein the decontamination unit comprises a collapsible container containing a pre-measured amount of decontaminating solution; and wherein the collapsible container is configured such that upon actuation of the vacuum source, the decontaminating solution flows from the collapsible container to the separation chamber and the collapsible container collapses.” Claim 46 depends indirectly from claim 31. Accordingly, claims 45-46 are patentable for at least the reasons presented above. Allowance of claims 45-46 is requested.

Conclusion

It is believed that no additional fees are due in connection with this filing. However, a request for continued examination is being submitted herewith. The required fee for the request should be charged to Deposit Account No. 04-1420. The Commissioner is authorized to charge any additional fees, including extension fees or other relief which may be required, or credit any overpayment and notify us of same, to Deposit Account No. 04-1420.

Respectfully submitted,

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